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PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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**TRANSMITTAL
FORM**

(to be used for all correspondence after initial filing)

Appl. & Patent Nos. 10/715,319 and 7,039,555

Filing & Issue Dates 11/17/2003 and 5/2/2006

First Named Inventor Fred D Lang

Group Art Unit 2857

Examiner Name Manual L. Barbee

Total Number of Pages in This Submission

10

Attorney Docket Number

11700

ENCLOSURES (check all that apply)

- ☒ Fee Transmittal Form
☒ Fee Attached \$100.00
☐ Amendment / Reply
☐ After Final
☐ Affidavits/declaration(s)
☐ Extension of Time Request
☐ Express Abandonment Request
☐ Information Disclosure Statement
☐ Certified Copy of Priority Document(s)
☐ Response to Missing Parts/ Incomplete Application
☐ Response to Missing Parts under 37 CFR 1.52 or 1.53

- ☐ Assignment Papers (for an Application)
☐ Drawing(s)
☐ Licensing-related Papers
☐ Petition
☐ Petition to Convert to a Provisional Application
☐ Power of Attorney, Revocation Change of Correspondence Address
☐ Terminal Disclaimer
☐ Request for Refund
☐ CD, Number of CD(s) _____

- ☐ After Allowance Communication to Group
☐ Appeal Communication to Board of Appeals and Interferences
☐ Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
☐ Proprietary Information
☐ Status Letter
☒ Other Enclosure(s) (please identify below):

Letter, Pages 5
Certificate of Corrections, pages 2
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Remarks

Please expedite.

Certificate
MAY 08 2006
of Correction

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENTFirm
or
Individual name

FRED D LANG, pro se Applicant and Patentee

Signature

Date

May 2, 2006

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being deposited with the US Postal Service with sufficient postage in an EXPRESS MAIL envelope addressed to: Commissioner for Patents, Alexandria, VA.

5/2/2006

Typed or printed name

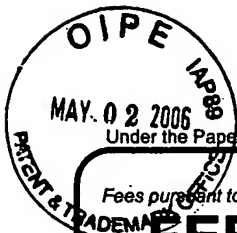
FRED D LANG

Signature

Date

5/2/2006

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2006☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 100.00**Complete if Known**

Appl. and Patent Nos.	10/715319 and 7,039,555
Filing and Issue Dates	11/17/2003 and 5/2/2006
First Named Inventor	Fred D. LANG
Examiner Name	Manuel L. Barbee
Art Unit	2857
Attorney Docket No.	11700

METHOD OF PAYMENT (check all that apply)☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☐ Deposit Account Deposit Account Number: _____ Deposit Account Name: _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☐ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	25	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP = _____	x _____	= _____				

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP = _____	x _____	= _____	

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

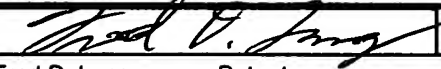
If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 = _____	/ 50 = _____	(round up to a whole number) x _____	= _____	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): _____ Certificate of Corrections (Code 1811) _____ **Fees Paid (\$)** 100.00**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent)	Telephone (415) 455-0100
Name (Print/Type)	Fred D. Lang, pro se Patentee		Date May 2, 2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Patent 7,039,555

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In regards the)	Attention:
Patent of: Fred D. Lang)	Certificate of
Patent No: 7,039,555)	Corrections Branch
Issued: May 2, 2006)	
Serial No: 10/715,319)	
Title: METHOD FOR DETECTING HEAT)	
EXCHANGER TUBE FAILURES AND)	
THEIR LOCATION WHEN USING)	
INPUT/LOSS PERFORMANCE)	Date of Submittal:
MONITORING OF A RECOVERY BOILER)	May 2, 2006

Mail Stop: Corrections Branch
Commissioner for Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This document submits a request for a Certificate of Correction to Patent 7,039,555:

REQUEST FOR CERTIFICATE OF CORRECTION
UNDER 37 CFR 1.322 AND 1.323

In reviewing the above-identified patent, errors were discovered therein requiring correction in order to conform the Official Record in the application, and to clearly claim the invention, as such, the Patentee requests that a Certificate of Correction be issued. The attached certificate pages employ form PTO/SB/44(05-03) in the same manner as used by the Certificate of Corrections Branch, for the convenience of the Branch.

The corrections submitted herein occurred as a result of both the PTO's printing the Letters Patent, and a Patentee's clerical mistake. To expedite, the Certificate should be issued under Rule 323 of the Rules of Practice, and as such a \$100 fee is required and enclosed as set forth in 37 CFR 1.20(a).

All corrections relate to four claims; these include Claims 22, 27, 28 and 58. Claims 22, 27 and 28 reflect PTO errors in not recognizing a 37 CFR 1.312 Amendment After Allowance,

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dated November 3, 2005. Claim 58 reflects a error by the patentee in not properly referencing an altered dependent claim in its preamble. To summarize:

Patent Claim 22, 1st clause: change "selecting" to using;

Patent Claim 27, 1st clause: add and, 2nd clause: change "determining" to using;

Patent Claim 28, preamble: change "determining" to using to reflect Claim 27;

Patent Claim 58, preamble and 1st clause: change "calculating" to computing.

A portion of the 312 Amendment of November 3, 2006 changes to the claims were Entered into the record, but some were not. Those changes to the claims which were not Entered, were then revised in a second 312 Amendment dated November 14, 2006. Although this was explained in the November 14, 2006 submittal, by table, this explanation is repeated here for clarity; note the table's use of original Application claim numbers. Following this table is a translation from Application claim numbers to Patent claim numbers.

Appl. Claim	First Claim Amend (7/5/05)	Second Claim Amend (9/8/05)	Third Claim 1.312 Amend (11/3/05)	Fourth Claim 1.312 Amend (11/14/05)	Appl. Claim	First Claim Amend (7/5/05)	Second Claim Amend (9/8/05)	Third Claim 1.312 Amend (11/3/05)	Fourth Claim 1.312 Amend (11/14/05)
1	yes	no	no	no	48-49	no	yes	yes, but not Entered	yes, regards 2 nd Amend.
2	yes	no	no	no	50-60	no	no	no	no
3	yes	no	no	no	61	no	yes	yes, Entered	no
4	no	no	no	no	62	no	cancelled	--	--
5	yes	no	no	no	63	no	cancelled	--	--
6-16	no	no	no	no	64-68	no	no	no	no
17	yes	yes	yes, Entered	no	69-71	new	yes	no	no
18-25	no	no	no	no	72	new	no	no	no
26	yes	no	no	no	73	new	yes	yes, Entered	no
27-46	no	no	no	no	74	--	new	yes, but not Entered	yes, regards 2 nd Amend.
47	yes	yes	yes, but not Entered	yes, regards 2 nd Amend.	75-76	--	new	no	no

MAY 8 2006

Application to Patent claim numbers and summary notes are as follows:

Application Claim No.	Patent Claim No.	Status
17	22	Entered with the 312 Amendment of November 3, 2005.
61	58	Entered with the 312 Amendment of November 3, 2005.
73	27	Entered with the 312 Amendment of November 3, 2005.
74	28	Patent correctly reflects the 312 Amendment of November 14, 2005; a mistake was made in the preamble by patentee (the word "determining" should read "using") to reflect Patent Claim 27.

To formerly submit these changes, the following is extracted from with the 312 Amendment of November 3, 2005, using Patent claim numbers; in addition to the change made to Patent Claim 28.

Claim 22 should be corrected as follows:

22. A method for quantifying the operation of a thermal system burning a fossil fuel, including a recovery boiler, producing effluents from combustion when being monitored on-line by one of the Input/Loss methods, said effluents from combustion influenced by an air leakage, the method comprising the steps of:

selecting using one of the Input/Loss methods resulting in a selected Input/Loss method,

selecting a set of effluent concentrations associated with the thermal system based on available instrumentation resulting in a set of available plant effluent concentrations,

obtaining a ratio of effluent concentrations based on an effluent concentration obtained before the air leakage and on an effluent concentration obtained after the air leakage, resulting in an obtained ratio across the air leakage, and

establishing an air pre-heater leakage factor which describes the effects of the air leakage into the thermal system based on the obtained ratio across the air leakage.

MAY 8 2006

Claim 27 should be corrected as follows:

27. The method of claim 22, including, after the step of establishing the air pre-heater leakage factor, the additional steps of:

obtaining a concentration of O_2 in the combustion air local to the thermal system, and

~~determining~~ using a ratio of air leakage to combustion air based on the air pre-heater leakage factor and the concentration of O_2 in the combustion air, resulting in an air pre-heater dilution factor.

Claim 28 should be corrected as follows:

28. The method of claim 27, including, after the step of ~~determining~~ using the ratio of air leakage to combustion air, the additional steps of:

using a consistent set of effluent concentrations to be use by the selected Input/Loss method based on the air pre-heater leakage factor and the set of available plant effluent concentrations,

using a combustion equation based on the consistent set of effluent concentrations and the air pre-heater dilution factor, and

resolving the combustion equation through use of the selected Input/Loss method.

Claim 58 should be corrected as follows:

58. The method of claim 55, wherein the step of ~~calculating~~ computing the fuel chemistry includes the step of

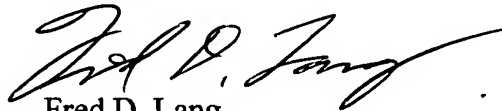
~~calculating~~ computing explicitly a moisture-ash-free fuel chemistry as a function of the explicit mathematical model of the combustion process, the set of measurable operating parameters, the obtained effluent H_2O , and the air pre-heater leakage factor.

This request for correction is respectfully submitted by the *pro se* Applicant and Patentee, Fred D. Lang, and the Assignee, Exergetic Systems, LLC as represented the Applicant and Patentee, Fred D. Lang, he being the President of Exergetic Systems, LLC.

MAY 8 2006

Thank you for considering these corrections to a patent which has importance to both the electric power and pulp & paper industries. **Further, it is believed this patent is being infringed, thus I beg that this request for a Certificate of Correction be expedited with all speed and diligence.** As appropriate, please give myself a call at (415) 455-0100 for discussion at any time.

Sincerely,



Fred D. Lang,

pro se Applicant and Patentee of
U.S. Patent No. 7,039,555.

Customer Number 40088.

12 San Marino Drive
San Rafael, CA 94901
Phone: (415) 455-0100
FAX: (415) 455-0115

FILED S 40088

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 7,039,555 B2
DATED : May 2, 2006
INVENTOR(S) : Fred D. Lang

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 22 should read as follows:

"22. A method for quantifying the operation of a thermal system burning a fossil fuel, including a recovery boiler, producing effluents from combustion when being monitored on-line by one of the Input/Loss methods, said effluents from combustion influenced by an air leakage, the method comprising the steps of:
 using one of the Input/Loss methods resulting in a selected Input/Loss method,
 selecting a set of effluent concentrations associated with the thermal system based on available instrumentation resulting in a set of available plant effluent concentrations,
 obtaining a ratio of effluent concentrations based on an effluent concentration obtained before the air leakage and on an effluent concentration obtained after the air leakage, resulting in an obtained ratio across the air leakage, and
 establishing an air pre-heater leakage factor which describes the effects of the air leakage into the thermal system based on the obtained ratio across the air leakage."

Claim 27 should read as follows:

"27. The method of claim 22, including, after the step of establishing the air pre-heater leakage factor, the additional steps of:
 obtaining a concentration of O₂ in the combustion air local to the thermal system, and
 using a ratio of air leakage to combustion air based on the air pre-heater leakage factor and the concentration of O₂ in the combustion air, resulting in an air pre-heater dilution factor. "

Claim 28 should read as follows:

"28. The method of claim 27, including, after the step of using the ratio of air leakage to combustion air, the additional steps of:
 using a consistent set of effluent concentrations to be use by the selected Input/Loss method based on the air pre-heater leakage factor and the set of available plant effluent concentrations,
 using a combustion equation based on the consistent set of effluent concentrations and the air pre-heater dilution factor, and
 resolving the combustion equation through use of the selected Input/Loss method.

MAY 8 2006

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 7,039,555 B2
DATED : May 2, 2006
INVENTOR(S) : Fred D. Lang

Page 2 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 58 should read as follows:

"58. The method of claim 55, wherein the step of computing the fuel chemistry includes the step of
computing explicitly a moisture-ash-free fuel chemistry as a function of the explicit mathematical model of the combustion process, the set of measurable operating parameters, the obtained effluent H₂O, and the air pre-heater leakage factor."

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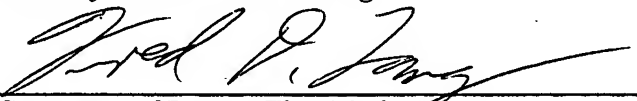


CERTIFICATION OF MAILING UNDER 37 C.F.R. §1.10

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FRED D. LANG, Applicant and Inventor
Name of Person This Mailing


Signature of Person This Mailing

Docket No.: 11700
Appl. and Pat. No.: 10/715,319 now US 7,039,555
Filing & Issue: 11/17/2003 issued 5/02/2006
Inventor & Appl.: Fred D. Lang
Title: METHOD FOR DETECTING HEAT EXCHANGER TUBE FAILURES
AND THEIR LOCATION WHEN USING INPUT/LOSS
PERFORMANCE MONITORING OF A RECOVERY BOILER

Total Pages: 10

- Transmittal Form; Pages 1
- Fee Transmittal with Fee of \$100 by check #1890; Pages 1
- Letter, Pages 5
- Certificate of Corrections, Pages 2.
- This Certificate of Mailing w/Postcard for return receipt.